

LISTING OF THE CLAIMS

Please **AMEND** claims 22-27, 29, 31, 33-34.

Please **CANCEL** claim 21.

Please **ADD** claims 35-43

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-21. (Canceled)

22. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the carbon foam is coal-based carbon foam.

23. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the carbon foam has a density ~~ranging~~ ranging from about 0.1 g/cc to about 0.8 g/cc.

24. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the carbon foam has a compressive strength up to about 6,000 psi.

25. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the carbon foam is carbonized carbon foam.

26. (Previously Presented) The thermal protection system of claim [[21]] 33, wherein the carbon foam has been impregnated with at least one selected from the group consisting of petroleum pitch, epoxy resins, and polymers.

27. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the carbon foam comprises an inert solid material.

28. (Previously Presented) The thermal protection system of claim 27, wherein the inert solid material comprises ceramic particles.

29. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the oxidation inhibitor comprises a metal.

30. (Previously Presented) The thermal protection system of claim 29, wherein the metal is selected from the group consisting of aluminum and inconel.

31. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein the oxidation inhibitor comprises a glass-forming compound.

32. (Previously Presented) The thermal protection system of claim 31, wherein the glass-forming compound is selected from the group consisting of a metal halide, metal carbide, and metal nitride.

33. (Currently Amended) ~~The thermal protection system of claim 21, further~~
comprising A thermal protection system, comprising:
an insulating core comprising carbon foam;
an oxidation inhibitor incorporated into said carbon foam; and
an antioxidant protective layer on a surface of the carbon foam.
34. (Currently Amended) The thermal protection system of claim [[21]] 33, wherein
a surface of the insulating core is positioned over a structure.
35. (New) The thermal protection system of claim 33, wherein the antioxidant
protective layer comprises a coating of a glass-forming compound.
36. (New) The thermal protection system of claim 35, wherein the glass-forming
compound is selected from the group consisting of a metal halide, metal carbide, and metal
nitride.
37. (New) The thermal protection system of claim 33, wherein the antioxidant
protective layer comprises a metal.
38. (New) The thermal protection system of claim 37, wherein the metal is selected
from the group consisting of aluminum and inconel.

39. (New) A thermal protection system, comprising:
an insulating core comprising carbon foam; and
an oxidation inhibitor incorporated into said carbon foam, wherein the oxidation inhibitor comprises a glass-forming compound..
40. (New) The thermal protection system of claim 39, wherein the oxidation inhibitor comprises a metal.
41. (New) The thermal protection system of claim 40, wherein the metal is selected from the group consisting of aluminum and inconel.
42. (New) The thermal protection system of claim 39, wherein the oxidation inhibitor comprises a glass-forming compound.
43. (New) The thermal protection system of claim 39, wherein the glass-forming compound is selected from the group consisting of a metal halide, metal carbide, and metal nitride.